

NON-PUBLIC?: N  
ACCESSION #: 8908160218  
LICENSEE EVENT REPORT (LER)

FACILITY NAME: North Anna Power Station, Uni 1 PAGE: 1 of 04

DOCKET NUMBER: 05000338

TITLE: Reactor Trip Due To A Loss Of EHC System Pressure  
EVENT DATE: 07/19/89 LER #: 89-014-00 REPORT DATE: 08/10/89

OPERATING MODE: 1 POWER LEVEL: 090

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR  
SECTION  
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:  
NAME: G.E. Kane, Station Manager TELEPHONE: (703) 894-5151

COMPONENT FAILURE DESCRIPTION:  
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:  
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

At 1740 hours, on July 19, 1989, Unit 1 experienced an automatic reactor trip from 90 percent power. The reactor trip signal occurred due to a loss of electro hydraulic control (EHC) system pressure which generated a turbine trip and a subsequent reactor trip since power was greater than 10 percent. This event is reportable pursuant to 10CFR50.73(a)(2)(iv). A four hour report was made in accordance with 10CFR50.72(b)(2)(ii).

The loss of EHC system pressure was due to a failed o-ring on the turbine trip solenoid operated valve (SOV) 20-ET. The loss of EHC system pressure resulted in the closure of the turbine stop valves which generated the turbine trip signal. A reactor trip signal was automatically initiated, as designed, since power was greater than 10 percent. No safety injection signal (manual or automatic) was initiated or required during this event. Unit 1 was placed on line at 2136 hours on July 20, 1989.

A Root Cause Evaluation is being performed to determine the root cause of the turbine trip solenoid operated valve 20-ET o-ring failure. Recommendations resulting from the Root Cause Evaluation on the o-ring failure

will be evaluated and implemented as necessary.

This event posed no significant safety implications because safety related equipment functioned as designed and key reactor parameters stabilized following the reactor trip. There was no release of radioactive materials due to the trip. The health and safety of the general public were not affected.

END OF ABSTRACT

TEXT PAGE 2 OF 04

## 1.0 Description of the Event

At 1740 hours, on July 19, 1989, Unit 1 experienced an automatic reactor trip from 90 percent power. The reactor trip signal occurred due to a loss of electro hydraulic control (EHC) system (EHS System Identifier TG) pressure which generated a turbine trip and a subsequent reactor trip since power was greater than 10 percent. This event is reportable pursuant to 10CFR50.73(A)(2)(iv). A four hour report was made in accordance with 10CFR50.72(b)(2)(ii).

Prior to the reactor trip, Unit 1 had been operating in a steady state condition at 90 percent power after returning to operation following a refueling outage, and no maintenance activities were ongoing.

The loss of EHC system pressure was due to a failed o-ring (EHS System Identifier TG, Component Identifier SEAL) on the turbine trip solenoid operated valve (SOV) 20-ET (EHS System Identifier TA, Component Identifier PSV). The loss of EHC system pressure resulted in closure of the turbine stop valves (EHS System Identifier TA, Component Identifier V) which generated the turbine trip signal. A reactor trip signal was automatically initiated due to the turbine trip signal, as designed, since power was greater than 10 percent. No safety injection signal (manual or automatic) was initiated or required during this event. The reactor trip response procedures were performed and safety related and important equipment performed as expected with the following exceptions:

\* Intermediate Range Nuclear Instrumentation (NI) (EHS System Identifier IG, Component Identifier DET, Vendor Identifier W120) N-36 was overcompensated and N-35 was undercompensated and adjustments had to be made. (Abnormal Procedure 4.2, "Malfunction of Nuclear Instrumentation (Intermediate Range)," was entered during this event).

\* The o-ring on turbine trip solenoid operated valve 20-ET failed. A Root Cause Evaluation is being performed to determine the cause of the failure.

TEXT PAGE 3 OF 04

#### 1.0 Description of the Event Cont'd.

Following the reactor trip, primary system temperature decreased to 532 degrees F, then recovered to the normal no load value of 547 degrees F. The Reactor Coolant System (RCS) temperature decrease to 532 degrees F was due to auxiliary feedwater injection and the limited amount of decay heat in the core. Pressurizer pressure was stabilized at approximately 1880 psig and pressurizer level was stabilized at approximately 20 percent with a second charging pump. Pressurizer pressure was slow to respond during this event due to reduced pressurizer heater capacity (six pressurizer heater breakers were found tripped).

After event investigation and corrective action, Unit 1 was placed on-line at 2136 hours on July 20, 1989.

#### 2.0 Significant Safety Consequences and Implications

This event posed no significant safety implications because safety related equipment functioned as designed and key reactor parameters stabilized following the reactor trip. There was no release of radioactive materials due to the trip. The health and safety of the general public were not affected.

#### 3.0 Cause of the Event

The automatic reactor trip occurred as designed due to the turbine trip caused by the loss of EHC system pressure. The loss of EHC system pressure was caused by a failed o-ring on the turbine trip solenoid operated valve 20-ET.

#### 4.0 Immediate Corrective Action

As an immediate corrective action, Emergency Procedure EP-0, "Reactor Trip or Safety Injection", was entered and the plant was stabilized in Mode 3.

TEXT PAGE 4 OF 04

#### 5.0 Additional Corrective Action

A Root Cause Evaluation is being performed to determine the root cause of the o-ring failure on SOV 20-ET. A study is being performed to evaluate installation of air conditioning units to provide cooling for the rod drive room and cable vault, in both units, where the pressurizer heater circuits are located.

#### 6.0 Actions to Prevent Recurrence

Recommendations resulting from the Root Cause Evaluation on the o-ring failure will be evaluated and implemented as necessary.

#### 7.0 Similar Events

A reactor trip due to EHC system malfunction occurred on Unit 1 on March 19, 1988 (LER N1-88-013-00).

ATTACHMENT 1 TO 8908160218 PAGE 1 OF 1

10 CFR 50.73

Vepco VIRGINIA ELECTRIC AND POWER COMPANY  
NORTH ANNA POWER STATION  
P. O. BOX 402  
MINERAL, VIRGINIA 23117

August 10, 1989

U. S. Nuclear Regulatory Commission Serial No. N-89-021  
Document Control Desk NO/DEQ: nih  
016 Phillips Building Docket No. 50-338  
Washington, D.C. 20555

License No. NPF-4

Dear Sirs:

The Virginia Electric and Power Company hereby submits the following Licensee Event Report applicable to North Anna Unit 1.

Report No. LER 89-014-00

This report has been reviewed by the Station Nuclear Safety and Operating Committee and will be forwarded to Safety Evaluation and Control for their review.

Very Truly Yours,

G. E. Kane  
Station Manager

Enclosure

cc: U. S. Nuclear Regulatory Commission  
101 Marietta Street, N. W.  
Suite 2900  
Atlanta, Georgia 30323

Mr. J. L. Caldwell  
NRC Senior Resident Inspector  
North Anna Power Station

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